

Mineral Industry Surveys

For information, contact:

James Carlin, Acting Bismuth Commodity Specialist
U.S. Geological Survey
989 National Center
Reston, VA 20192
Telephone: (703) 648-4985, Fax: (703) 648-7757
E-mail: jcarlin@usgs.gov

Carolyn Crews (Data)
Telephone: (703) 648-7949
Fax: (703) 648-7975
E-mail: ccrews@usgs.gov

Internet: <http://minerals.usgs.gov/minerals>

BISMUTH IN THE FIRST QUARTER 2005

Total bismuth consumption in the United States for the first quarter of 2005 was 595 metric tons (t), which was essentially unchanged from that in the fourth quarter of 2004, according to estimates compiled by the U.S. Geological Survey. Estimated consumer stocks were essentially unchanged at the end of the first quarter of 2005 as compared with those held at the end of the fourth quarter of 2004 (table 1). The consumption breakdown for bismuth in the first quarter of 2005 was 45% for metallurgical additives and galvanizing; 29% for fusible alloys, solders, and ammunition; and 25% for chemical and pharmaceutical uses. A small quantity was also used for research and other miscellaneous uses (table 2).

The New York dealer price for bismuth, as published in Platts Metals Week, started the month of January at \$3.40 to \$3.70 per pound, and traded in a narrow price range during the entire first quarter, moving down to \$3.30 to \$3.50 per pound early in February and finishing the quarter there. This price range was higher than that of the first quarter of 2004 when bismuth finished the quarter at \$2.95 to \$3.25 per pound.

China reportedly exported 276 t of bismuth in January, a decrease of 18% (and a fall in value by 13%) when compared with exports in December of 2004. There were no shipments of bismuth to the United States in January, the leading destination for Chinese refined bismuth metal in 2004, and which accounted for more than one third of China's exports in December (Metal-Pages, 2005§¹).

Antaike (2005) stated that bismuth's current strong demand (and price strength) and possible future expanding demand is dependent on its continued substitution for lead. Since the 1990s, bismuth has been used as an environmentally friendly substitute for lead in ceramics, drinking water fixtures, food

processing equipment, fishing gear, water-fowl shot gun ammunition, galvanizing, and lead-free solders.

Shizhuyuan Nonferrous Metals Company, Ltd. in Hunan Province (China) planned to build a 2,000-metric-ton-per-day polymetallic mining and milling operation. The project received government approval and is scheduled for trial production at the end of 2006. With the completion of this project, Shizhuyuan Nonferrous would become the largest bismuth producer in Asia and the largest molybdenum smelter in Hunan Province (Antaike, 2005§).

Canadian-based exploration company QGX Limited acquired a 100% interest in the Undur Tsagaan property in Khenti Province in northeast Mongolia. This prospect was believed to be the largest known occurrence of molybdenum and tungsten in Mongolia. Earlier (1979-82) drilling and exploration work by Russian and Mongolian exploration teams estimated resources of 141 million metric tons (Mt) containing 0.124% WO₃, 0.019% Mo, 0.03% Be, and 0.08% Bi, and 60 Mt of resources containing 0.11% WO₃, 0.03% Mo, 0.03% Be, and 0.01% Bi (QGX Limited, 2005).

References Cited

- Antaike, 2005, Indium, bismuth & cadmium—Substitution for lead, key to bismuth price increase: Antaike, China Metal Market—Precious & Minor Metal Monthly, no. 63, May, p. 17-18.
QGX Limited, 2005, QGX acquires largest molybdenum-tungsten property in Mongolia: Waterdown, Ontario, Canada, QGX Limited press release, April 18, 2 p.

Internet References Cited

- Antaike, 2005 (March 28), Shizhuyuan to construct a 2,000 tpd polymetallic mining and concentrating project, accessed June 24, 2005, via URL <http://www.antaike.com>.
Metal-Pages, 2005 (March 3), China Bi exports fall, accessed June 24, 2005, via URL <http://www.metallpages.com>.

¹References that include a section mark (§) are found in the Internet References Cited section.

TABLE 1
SALIENT BISMUTH STATISTICS¹

(Kilograms unless otherwise specified)

	2004 ^p	2005 First quarter
Consumption ^c	2,420,000	595,000
Exports ²	109,000	22,000
Imports for consumption	1,980,000	720,000
Price per pound, dealer, end of period	\$3.35	\$3.55
Stocks, end of period, consumer	134,000	132,000

^cEstimated. ^pPreliminary.

¹Data are rounded to no more than three significant digits.

²Comprises bismuth metal and the bismuth content of alloys and waste and scrap.

TABLE 2
ESTIMATED BISMUTH METAL CONSUMED
IN THE UNITED STATES, BY USE¹

(Kilograms)

Use	2004 ^p	2005 First quarter
Chemicals ²	584,000	146,000
Bismuth alloys	703,000	175,000
Metallurgical additives	1,110,000	271,000
Other	21,200	3,130
Total	2,420,000	595,000

^pPreliminary.

¹Data are rounded to no more than three significant digits, may not add to totals shown.

²Includes industrial and laboratory chemicals, cosmetics, and pharmaceuticals.

TABLE 3
U.S. EXPORTS OF BISMUTH METAL, ALLOYS AND WASTE AND SCRAP, BY COUNTRY¹

(Kilograms)

Country	2004			2005			
	Final	December	Fourth quarter	January	February	March	First quarter
Belgium	2,720	--	--	--	--	--	--
Brazil	1,140	275	843	--	300	189	189
Canada	46,000	--	8,540	--	6,940	2,460	12,900
China	99	--	--	--	--	--	--
Dominica	53	--	--	--	--	--	--
Dominican Republic	11,100	276	427	48	118	88	255
Germany	1	--	--	--	--	--	--
Guatemala	229	--	--	--	229	--	--
Hong Kong	360	--	--	--	25	45	45
Ireland	--	--	--	309	--	--	309
Italy	113	113	113	--	--	--	--
Japan	5,320	--	118	--	145	2,100	2,100
Korea, Republic of	75	--	--	--	--	--	--
Mexico	28,500	127	127	--	2,040	272	4,430
Russia	2,090	1,050	1,050	--	--	--	--
Singapore	59	20	57	--	--	--	--
Spain	--	--	--	1,000	--	--	1,000
United Kingdom	10,700	960	960	--	729	728	728
Total	109,000	2,820	12,200	1,360	10,500	5,890	22,000

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 4
U.S. IMPORTS FOR CONSUMPTION OF BISMUTH METAL, BY COUNTRY¹

(Kilograms, metal content)

Country	2004			2005			
	Year	December	Fourth quarter	January	February	March	First quarter
Bahamas, The	1,910	--	762	--	--	--	--
Belgium	793,000	80,500	241,000	78,800	121,000	153,000	353,000
Canada	8,760	1,150	2,870	980	2,370	--	3,350
China	169,000	20,100	27,500	100,000	17,400	80,000	198,000
Germany	162,000	90	90	--	--	73	73
Hong Kong	77,100	17,400	17,400	--	--	--	--
Mexico	495,000	40,000	120,000	60,000	20,000	40,000	120,000
Netherlands	232	--	191	--	--	--	--
Peru	39,800	--	--	--	--	--	--
Russia	52	--	--	--	--	--	--
Spain	500	--	500	--	--	300	300
United Kingdom	237,000	15,800	78,800	15,400	16,100	14,500	46,000
Total	1,980,000	175,000	489,000	255,000	177,000	288,000	720,000

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.